



Head of Wall Fire Joint

Mineral Wool Installation

Part 6 of 7

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A key element of the head-of-wall fire joint is mineral wool, which plays a vital role in fire safety. Mineral wool provides several essential functions: it contains heat during a fire, helps maintain the integrity and stability of the joint, and accommodates movement. The effectiveness of the fire joint during a fire largely depends on how the mineral wool is cut, installed, and finished by the installer. This bulletin outlines the functions of mineral wool, its importance, and the proper methods for installing it in a fire joint.

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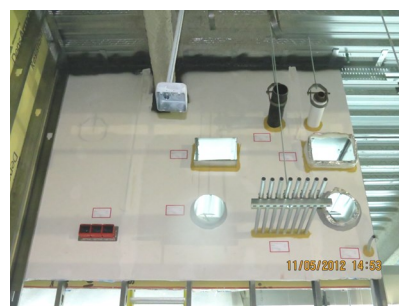
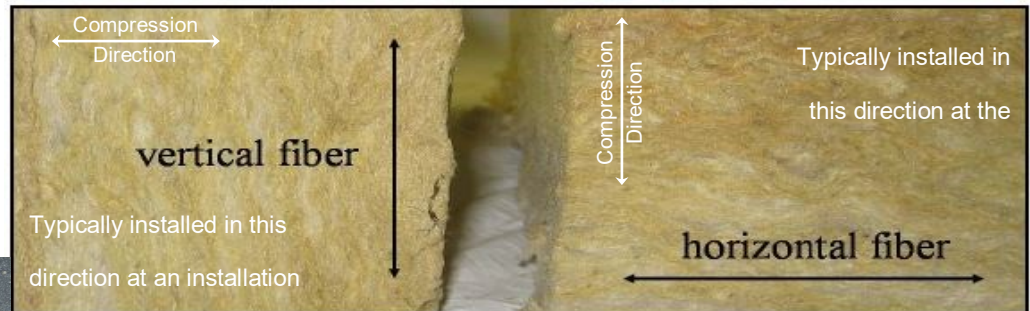
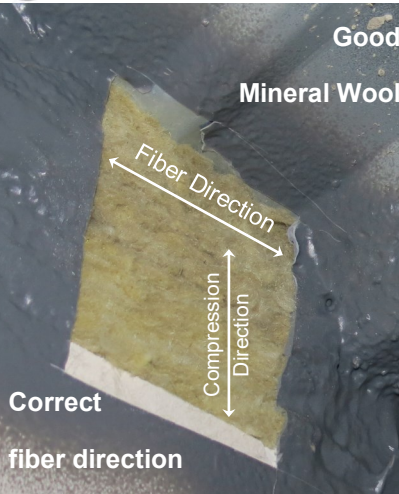
Head of Wall Fire Joint Bulletins will address:

- I - What is a "Head of Wall" fire joint & why do we need it.
- II - Types of UL Assemblies.
- III - How to read a Head of Wall & what to look for – Typical Wall & Shaft Wall.
- IV - Engineering Judgments and 3rd Party Verification – How to read an E.J.
- V - Deflection calculations & Compression limitations
- VI - Mineral Wool Installation
- VII - Concerns with the different types of fire stopping materials – Spray, Sealant, Mechanical

- ❑ As discussed in earlier Quality Bulletins, the cycling of a "Head of Wall" fire joint is a critical part of the design. Sealant or fire spray must be able to maintain a proper bond with the wall & floor assemblies and compress or stretch with any movement to maintain proper fire protection. Critical to that concept is the backing material for the sealant or fire spray, which also must be able to compress or stretch and maintain its structure for the life of the building.
- ❑ Mineral wool provides the necessary thermal break between the fire side and non-fire side of the wall.
- ❑ Mineral wool has a very high melting temperature of over 2000° F. In a fire, mineral wool will hold its form.
- ❑ Mineral wool acts as a bond breaker, making sure that the sealant or fire spray is not bonded by three sides, which allows for free movement of the sealant or fire spray.
- ❑ Fire joints start with mineral wool insulation packed into the gap in a certain fiber direction & compression factor based on the UL Assembly tested joint. The mineral wool compression will vary from 15% to 50% and the direction of the fibers needs to be in accordance with the tested system.
- ❑ In most tested assemblies, the horizontal fiber direction (fibers run side to side), allows the mineral wool to compress and expand when the joint cycles. The mineral wool orientation is designed to accommodate the movement required for a dynamic joint.
- ❑ The sealant or fire spray bonds the whole fire joint system together, so that the mineral wool does not get displaced during the fire exposure or get dislodged during a hose stream by a fire department.
- ❑ The mineral wool packed into the joint will resist the migration of heat from one side to the opposite side, regardless of which side the fire is on.
- ❑ The sealant or fire spray acts to resist the flow of hot smoke and toxic gases from fire side to non-fire side.
- ❑ It is important to understand that the protection of the joint is for either side of the partition, so the sealant or fire spray is applied to both sides.
- ❑ The sealant on the fire side may be compromised or even consumed by the intense heat of the fire. However, the sealant on the non-fire side, which has been protected from heat by the mineral wool, will remain intact, and will prevent migration of gases and keep the entire system together despite movement or hose stream impact.
- ❑ The installation of the mineral wool should be flush with each adjacent piece, tight, & relatively smooth for a good sealant or fire spray installation.

The best tool to cut

mineral wool is serrated knife (bread knife)



Good example of a fire stopping and head-of-wall mock-up

